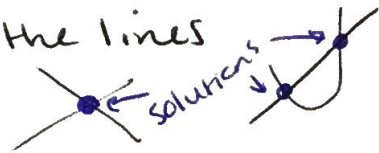


Notes - Systems with Substitution

A solution to a system is a point that makes all of the equations true.

On a graph, the solutions are where the lines cross / the point that is on both lines



Ex 1: $2x - 5y = -14$, $x = 3$

$$2(3) - 5y = -14$$

$$\begin{array}{r} 6 - 5y = -14 \\ -6 \quad -6 \\ \hline \end{array}$$

$$\begin{array}{r} -5y = -20 \\ -5 \quad -5 \\ \hline \end{array}$$

$$y = 4$$

$$(3, 4)$$

Ex 2: $3x + 4y = 19$, $y = 3x + 1$

$$3x + 4(3x + 1) = 19$$

$$3x + 12x + 4 = 19$$

$$\begin{array}{r} 15x + 4 = 19 \\ -4 \quad -4 \\ \hline \end{array}$$

$$15x = 15$$

$$x = 1$$

$$\begin{array}{l} y = 3(1) + 1 \\ = 3 + 1 = 4 \end{array}$$

$$\begin{array}{c} x, y \\ (1, 4) \end{array}$$

Ex 3: $y = 3x - 5$, $y = 2x + 6$

$$\begin{array}{r} 2x + 6 = 3x - 5 \\ -2x \quad -2x \\ \hline \end{array}$$

$$\begin{array}{r} 6 = x - 5 \\ +5 \quad +5 \\ \hline \end{array}$$

$$11 = x$$

$$\begin{array}{l} y = 2(11) + 6 \\ = 22 + 6 \\ = 28 \end{array}$$

$$(11, 28)$$